

## **DOUBLE HUNG WINDOW HAVING COMBINED PUSHDOWN SURFACE AND KEEPER**

### **BACKGROUND OF THE INVENTION**

**[0001]** This invention relates to a double hung window wherein the upper pane has a keeper for being secured to the lower pane, with the latch also providing a surface to assist in downward movement of the upper pane.

**[0002]** Double hung windows typically include an upper pane and a lower pane, with the two being movable vertically relative to each other. Typically, the upper pane is positioned outwardly of the window opening relative to the inner pane, such that the two may pass during this vertical movement. A pivoting latch is typically positioned on an upper surface of a frame of the lower pane. The latch pivots to lock underneath a keeper on a forward frame portion of the upper pane. When in the latched position, the two panes cannot be moved relative to each other. When the latch is pivoted to a release position, the upper and lower panes can move vertically relative to each other.

**[0003]** In some double hung windows, it is desirable and possible to move the upper pane vertically downwardly, and along side the lower pane. In the past, some surface on the upper pane has necessarily been used to apply a downward force. Users may have utilized a portion of the frame of the upper pane, or perhaps some additional surface may have been added to the upper pane. However, the portion of the upper pane including the “keeper” has typically had a shape that does not provide any such surface.

## **SUMMARY OF THE INVENTION**

**[0004]** In a disclosed of this invention, a keeper is positioned on an upper pane of a double hung window. The keeper also has a force-applying surface for applying a downward force to the upper pane that extends along a distance that exceeds the length of the keeper tongue. In preferred embodiments, the keeper tongues extend for a length that is less than one-half the overall length of the force-applying surface. In most preferred embodiments, the keeper tongue extends for a length that is less than one-third the length of the force-applying surface.

**[0005]** In another preferred feature, the force-applying surface is curved to comfortably accommodate the user's fingers to apply the downward force. Thus, a vertically upward facing surface of the keeper is curved along a slight radius to provide a wide and comfortable surface for application of the downward force.

**[0006]** These and other features of the present invention can be best understood from the following specification and drawings, the following of which is a brief description.

## **BRIEF DESCRIPTION OF THE DRAWINGS**

**[0007]** Figure 1 shows a double hung window incorporating the present invention in a "locked" position.

**[0008]** Figure 2 shows the double hung window of Figure 1 with the latch having been pivoted to the "open" position.

**[0009]** Figure 3A is a front view of the combined keeper/surface member.

**[0010]** Figure 3B is an inside view of the combined keeper/surface member.

**[0011]** Figure 4 is a side view of the combined keeper/surface as attached to an upper pane of a window.

#### **DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT**

**[0012]** As shown in Figure 1, a double hung window includes an upper pane 20 and a lower pane 22. Lower pane 22 includes a top frame member 23 supporting a pivoting latch 26. As is known, pivoting latch 26 has a latching cupped member 28 that is caught underneath a keeper tongue 30 on a combined keeper/force-applying surface 24. As shown, the combined keeper/surface 24 incorporates a force-applying surface 34 at a vertically upward facing portion. As can be appreciated, the surface 34 sits atop an uppermost edge 33 of the frame of the upper pane. A side wall 32 of the combined keeper/surface 24 extends along a forward face 31 of that same frame member.

**[0013]** As shown in Figure 2, and as generally known, the pivot 26 can have member 28 pivoted such that member 28 is no longer caught underneath tongue 30. In this position, the two panes 20 and 22 may now be moved relative to each other to vertically adjusted positions. As shown, a user may apply a downward force to surface 34.

**[0014]** Figure 3A shows the combined keeper/surface 24. As can be appreciated, side walls 32 extend downwardly from the upper surface 34. A plastic surface 37 is secured to the keeper 30 and along an inner side of the upper surface 34. As shown, pins 39 may secure the plastic to a central web 29 which provides the surface 34 on an opposed side. As also shown, bolts 36 allow the combined keeper/surface 24 to be secured to the frame face 31.

**[0015]** As shown in Figure 3B, there is a curved inner surface 41 surrounding the tongue 30, and the pins 39 are inward of that surface 41. The surface 41 allows the pivoting movement of the member 28 of the latch 26. As can be appreciated from Figure 3B, the tongue 30 extends for a distance that is less than half, and preferably less than one-third the distance over which the force-applying surface 34 extends.

**[0016]** As shown in Figure 4, the frame surfaces 31 and 33 accommodate the shape of the combined keeper/surface 24. As can be appreciated, the surface 34 is curved along a slight radius to provide a finger recess. As can be appreciated, the curvature of the surface 34 is along a slight radius relative to an axis extending generally parallel to the plane of the window in the upper pane.

**[0017]** Although a preferred embodiment of this invention has been disclosed, a worker of ordinary skill in this art would recognize that certain modifications would come within the scope of this invention. For that reason, the following claims should be studied to determine the true scope and content of this invention.